



ECO SECURITIES



# EcoSecurities Group plc

## The Emissions Trading Market: Current State and Trends

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## The CDM – and global emissions trading in general - is a Radical Experiment

- Nothing like this has ever been attempted before

A market mechanism to link industrial and developing countries for **capital**, **technology**, and **deployment**

- Essentially, the **past** is subsidizing the **future**
  - But, only insofar as the Market efficiently allows transfers and prices them competitively against other options
- The CDM is supposed to support both **emission reductions** and **sustainable development**
- Five years in and signs are mixed...

# Emissions Policy Basics

**Cap & trade:** efficiently achieves a quantitative environmental result from a set of participants

- But, less effective as covered sources grow smaller, more diffuse

**Taxes:** uncertain short term elasticity and long term behavior shifts

Emission caps = or taxes - for developing countries is a non-starter

- **This doesn't mean there are no significant opportunities to effectively reduce emissions from such sources**

We talk about "on system" and "off-system" reduction opportunities

- **CDM is the principal off-system opportunity**



# The CDM is created from whole cloth

- Possibly the first regulatory system that **creates value**, rather than intermediating value that already exists
- An enormous task—potentially unlimited number of project types, locations, counterparty types, emission reduction methodologies
- System bridges multiple countries and the UN
- Enforcement largely managed by private sector, media, civil society
- Imperative need for independent third party accountability

**Creating CERs is *not* a zero-sum transaction**

- The concept of “**additionality**” is plausible on the surface, but ranges in qualitative interpretation among different observers



# The Positive and the Negative

- Complex system up and running
- >1000 projects UN registered
- >3000 more in the pipeline
- Current projection: from 2008-2012 these projects will reduce **2.5 billion tonnes** of developing country emissions
- Successful early projects are extraordinarily concentrated
- 16 of 1000 projects are generating 75% of total credits to date (95M out of 130M tonnes)
- System is overly complicated and is becoming almost impossible for small projects to gain access

- The hardest part is over
- “Learning by doing” has created significant CDM expertise base
- Many failures can be attributed to “over-success”
- Solid proof that markets can indeed achieve social objectives
- High value, immediate return projects are done
- Dwindling Kyoto timeframe = little incentive to invest in next set of projects
- Great uncertainty today about what happens after 2012
- Current additionality construct makes many CER projects highly unpredictable
- **All this constrains investment flows dramatically**



# Example: The Dispersion Effect

Buenos Aires  
 Bangkok  
 Beijing  
 Bern  
 Casablanca  
 Chengdu  
 Delhi  
 Dubai  
 Dublin  
 Jakarta  
 Johannesburg  
 Karachi  
 Kiev  
 Kuala Lumpur  
 Lima



- Countries where EcoSecurities has projects
- EcoSecurities' current office locations or representatives

Los Angeles  
 Madrid  
 Manila  
 Manama  
 Mexico City  
 New York  
 Oxford  
 Portland  
 Rio de Janeiro  
 Rome  
 San Jose  
 Santiago  
 Singapore  
 The Hague  
 Tokyo

# EcoSecurities Overview

**EcoSecurities is a leading originator of carbon credits in the global carbon market**

Carbon Credit portfolio at of March 2008 comprised of:

- 400+ CDM projects using 18 technologies in 36 countries
- 105 projects registered with the CDM Executive Board (largest portfolio in the world)
- Projects have the potential to generate 150 m CERs to 2012

A history of “market firsts”:

- First emission reduction project to be registered by the UN under the Kyoto Protocol
- First project to receive Certified Emission Reductions (CERs) under the Kyoto Protocol

Strategic association with Credit Suisse via an acquisition in June 2007 of 9.9% of issued share capital.

EcoSecurities is listed on the London Stock Exchange AIM (ticker “ECO”), with a market capitalisation of approximately US\$300 m.



## Prices: from EUAs to VERs

(€/t)	Contractual terms	Implications and risks for seller
20-24	Phase 2 EUAs – no risk for Buyer	Only EU companies have EUAs
16-18	CERs with delivery guaranteed by AA-rated co. ITL and supplementarity risk for Buyer	Only AA-rated companies can offer. Huge transaction costs and collateral needs
12-14	CERs sold by entities with no credit rating but <u>guaranteeing delivery</u> and subject to mark-to market <u>penalties</u> . Seller covers all <u>transaction costs</u> , and keeps a <u>buffer reserve</u> of unsold CER, to provide delivery shortfalls	High risk to Seller. If project underperforms, Seller has to buy credits in the open market, exposed to high spot prices. Have to pledge assets as collateral, which can be called in case of no replacement. Have to incur high transaction costs. Risk of being unable to sell buffer reserve
9-11	<u>CERs sold without delivery guarantees</u> , but keeping <u>buffer reserve</u> and covering <u>transaction costs</u>	Transaction costs and risk of unsold buffer
8-10	Same as above, keeping buffer reserve but <u>not covering transaction costs</u>	No costs, but risk of unsold buffer reserve
6-8	Same as above, but <u>not keeping buffer reserve</u> and <u>not covering transaction costs</u>	No risk to Seller. EcoSecurities' typical contracts, where it takes all risks from the Seller
4-7	Same as above, but <u>Buyer provides advance payment</u>	No risk to Seller and access to capital
6-12	<u>VERs</u> – no delivery obligation, no CDM registration, but requirement of verification	No risk to Seller but lower price. Higher price for “Story” projects
1-3	<u>ERs</u> – no delivery obligation, no CDM, no requirement for verification	No risk to Seller but low price

Sources: based on Point Carbon, World Bank, internal sources



# We are an Industry Based on Policy

- Today, policies are extremely unpredictable/disappointing
  - The ongoing delays in linking the EU to the CDM via the International Transaction Log has *real* impacts on cash flows
  - No certainty of post-2012 in the UNFCCC
  - EU's proposed severe limitations on the CDM post-2012 are already negatively impacting the industry
  - "Fortress California" a surprising vanguard of climate protectionism
  - Most US legislation largely devoid of international linkages



# Fool Me Once, Shame on You...

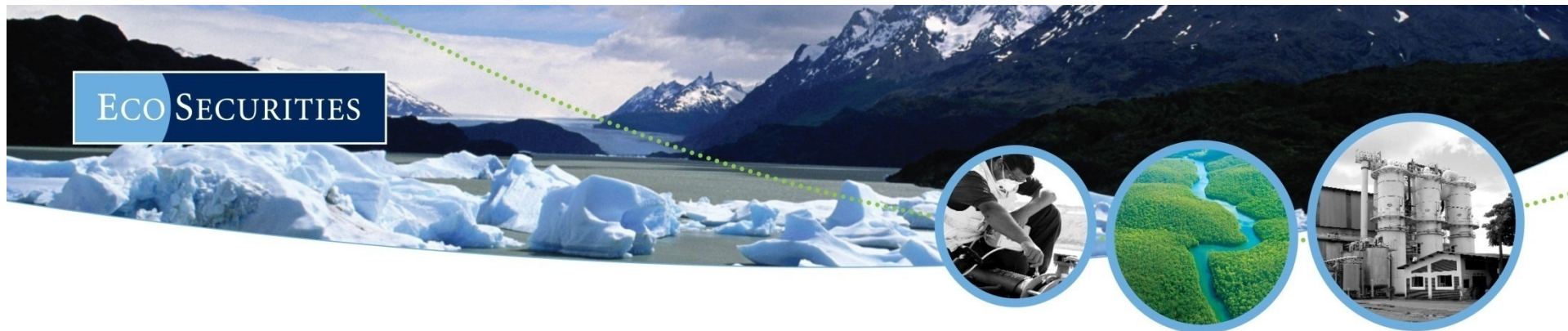
- To those in the industry, policy shifts are bewildering and disturbing
- Capital markets have provided €billions to funds, companies and technologies based on the assumption of stable policy
- Won't easily get another bite at the financial apple if capital markets believe that climate policies are too malleable and unpredictable
  - Many of us remember when the i-banks were *not* at the table

**Capital markets are not “optional” in a global transition that will require the mobilization of €trillions**



# Fool Me Twice, Shame on Me

- Innovation and determination must be rewarded
- Important that early adopters and risk takers not have the rug pulled out from under them by arbitrary policy shifts
- Risk pulling a “bait and switch” on a key climate change/sustainable development tool that has engaged the developing world
- This could have profoundly negative impacts on future negotiations between the OECD and G-77 on these issues



# Why the Shift?



Some negative interpretations:

## 1. CDM is nothing more than a subsidy for China

### Response:

- China is 40% of the developing world's emissions
- It makes sense that many CDM projects were sourced there
- China has also created a stable CDM regulatory environment
  - Not the case in many other countries (Brazil, Thailand, etc.)

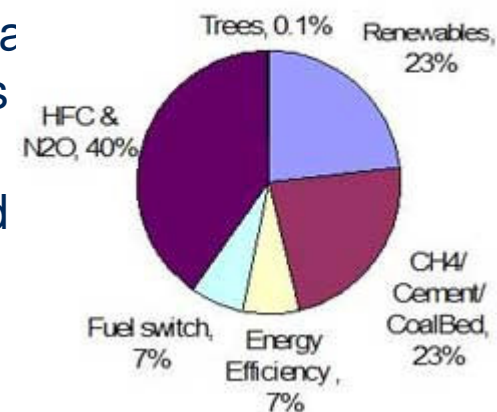


## 2. CDM has proven a boon to one class of assets alone (chemical plants)

### Response:

- Only partially true, plus, markets by nature first seek out highest return assets
- There may have been more effective/ efficient mechanisms emissions from these highly concentrated sources
- In the absence of such means, the markets proved effective incentives and find least cost reductions

2012 CDM CER Distribution





### 3. The voluntary carbon market is rife with charlatans

#### Response:

- Important differences between voluntary and compliance markets
- Not entirely untrue (or true), but saying so would be like condemning the Internet in 1998 because of **Pets.com**
- **Voluntary Market is taking strong steps to create and enforce standards, via the VCS and the Gold Standard**





## 4. Many non-chemical projects (EE/RE) are not additional

### Response:

- Some truth: these projects allow greater emissions in EU/Japan possibly without clear 1:1 reductions in LDCs
- However, we also need to appreciate the benefits of scaling up RE technology into new markets
- Bottom-up additionally is a challenge to implement effectively
- Challenge is a function of the ratio of conventional to carbon value, which ranges from 4:1 to 10:1
- **We probably need to re-conceive this part of the CDM**





# ER opportunities in the coal mining sector

## Drained coal mine methane

- High methane concentration mine gas (above 25% CH<sub>4</sub>)
- Pre-mining, during mining, and post-mining.
- Normally offsets fossil fuel use to produce this energy in the absence of the project.

### Flaring of the extracted methane

- No real incentives for adopting this except carbon credits or regulatory requirements.

### Use of methane for thermal energy

- Gas is burnt in boilers to produce steam to meet heat requirements
- For large gas volumes, a large off-taker of thermal energy is needed

### Use of methane for electricity generation

- Gas engines, or larger power stations with boilers and steam turbines.
- Must also consider the proximity to high capacity grid transmission lines, the ease of securing a Power Purchase Agreement, and the tariff paid for electricity.



## What Else?

### Ventilation Air Methane (VAM)

- Typically comprises the largest source of methane emissions from any coal mine.
- Challenging to capture and utilise or combust, however, emerging technologies exist
- Emission reductions are gained in proportion to the amount of methane destroyed, which can be very significant in a large mine, even though the concentration of methane in the air is very low.

### Open cast mining

- Not currently eligible: no means to estimate emissions; costly to extract and utilise CBM

### Coal Bed Methane

- 'Virgin' CBM is ineligible
- Pre-mining CBM is eligible; CDM methodology requires an eligibility assessment of CBM however – credits can only be gained once a borehole is mined through

## Slide 18

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**a3**

Not sure what this means and also not sure whether this is the right point to end on when you have so many other strong and important points to make

abarnes, 3/25/2008

## Current Status

- Currently for CMM there is one consolidated methodology - ACM0008 current version is 4. At this juncture there have been:
  - 8 projects registered
  - 1 under review
  - 3 requesting registration
  - 54 in validation
  - Apart from 1 project under validation in Mexico and another in South Africa, **the CMM projects are all located in China.**
  - Interestingly, of the 5 projects that originally contributed to the consolidated meth, only 1 has been registered, which also happens to be the only one with issued CERs at 77,998 tCO<sub>2</sub><sup>a4</sup> over roughly one year.

## Slide 19

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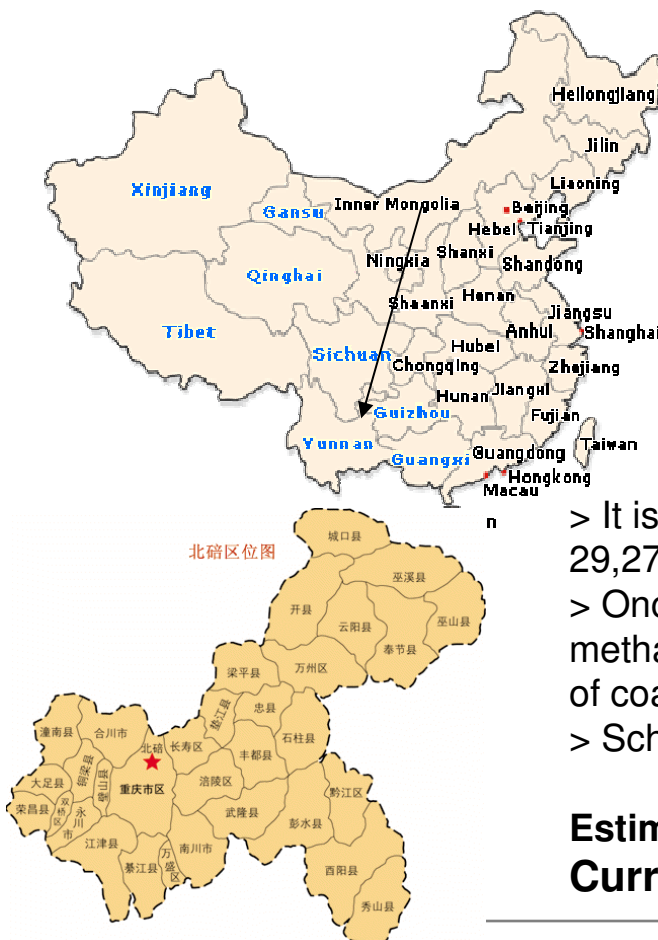
**a4**

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## Case 1: CMM for thermal energy



**Location:** Chongqing Municipality, China

**Type of emission reductions:** Methane destruction and fuel switch from coal to CMM and Natural Gas

**Project description:**

- > Capture of CMM from 4 mines and mixing with natural gas to supply 20 local industries
- > The project will construct a Coalmine Methane (CMM) supply network and gas transfer stations that will connect the 4 mines to local industrial parks and natural gas supply systems.

> It is planned to annually supply 49,796,800 m<sup>3</sup> methane from CMM and up to 29,270,000 m<sup>3</sup> of natural gas to industries.

> Once up and running the project destroy approximately 33,364 tonnes of methane, while at the same time avoid the use of approximately 98,953 tonnes of coal per annum.

> Scheduled to begin operating by mid 2008

**Estimated ERs:** 600,000 tCO<sub>2</sub>e/year

**Current Status:** Validation

## Case 2: CMM for electricity generation



**Location:** Chongqing Municipality, China

**Type of emission reductions:** Methane destruction and low carbon electricity generation

**Project description:**

- 24 x 0.5MW generators running on CMM from 4 mines
- Electricity will be supplied to the mines, offsetting coal-dominated grid electricity imports
- In conjunction with supply to households
- Electricity component: 42,000,000 m<sup>3</sup> CH<sub>4</sub> per year
- the project is scheduled to begin operating by early 2008

>To supply the generators, 5 additional CMM extraction pumps will be installed to improve underground drainage

> Additionality: an investment analysis of all the alternatives to the project was carried out, and it was demonstrated that the IRR of the project (without CDM financing) was 8%. With CDM, it rises to 49%

**Estimated ERs:** 800,000 tCO<sub>2</sub>e/year

**Current Status:** Validation

## Case 3: CMM for gas grid

**Location:** Sichuan Province, China

**Type of emission reductions:** Methane destruction and fuel switch from coal and LPG to CMM

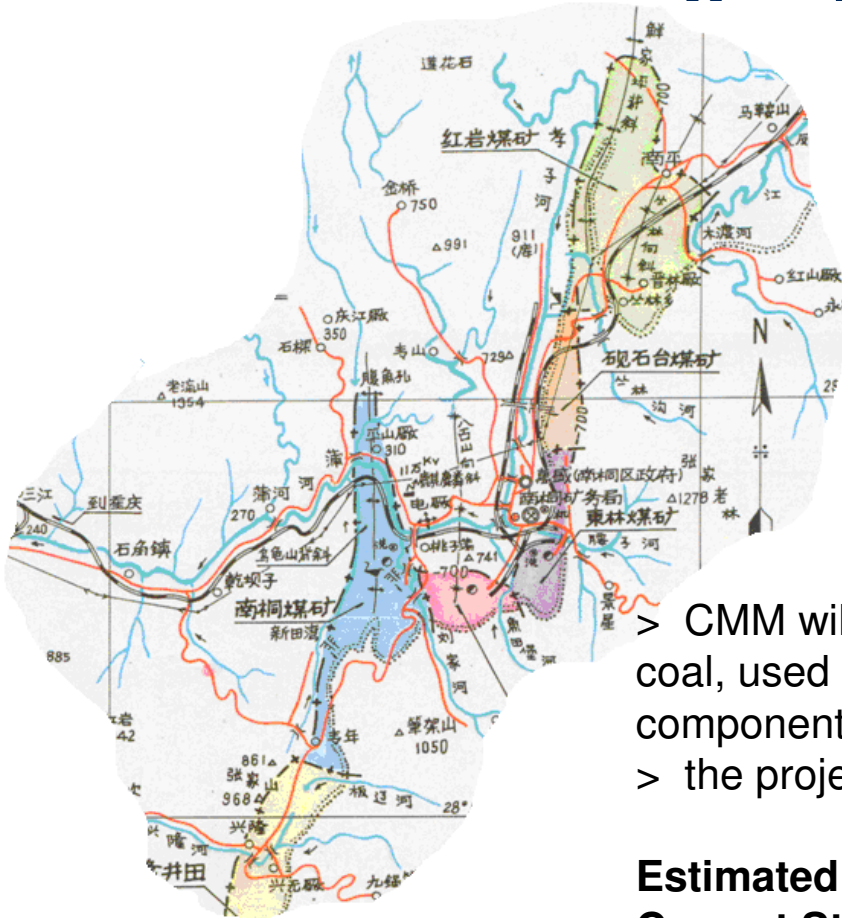
**Project description:**

- 5 mines. Notoriously gassy. CMM extracted using a complex network of 70mm boreholes linked to an underground piping system.
- Small previous system heavily damaged during 2002 flooding
- CDM project will replace & expand upon this system, supplying up to 10,000 houses. Household component: 2,219,760 m<sup>3</sup> of methane a year

- > CMM will also be supplied to 12 boilers previously running on coal, used to heat water for the mine's showers and baths. Boilers component: 6,000,000 m<sup>3</sup> of methane a year
- > the project is scheduled to begin operating by early 2008

**Estimated ERs:** 140,000 tCO<sub>2</sub>e/year

**Current Status:** Validation







## What Does all this Mean

- **While the Coal Mine Sector is Just getting Moving . .**
  - - It is not inconceivable that the Post 2012 CDM Market Disappear or be severely Reduced
    - Neither the US or Europe these days seems to care
    - How will CMM emissions be treated in domestic ET (will they be on-system or off system)
- **Can The Voluntary market fill the Gap?**
  - In many project types, the growing answer appears to be yes
  - Unfortunately, the current V-Market is still focused on story projects – and coal mining is a tough sell

# Points to Take Away

1. MARKETS WORK – but designing them to fit the specific policy goal is critical
  - Markets are not the only solution, but an important arrow in the policy quiver
2. We need **long-term (20++ years) commitments** to policy that reward/penalize relative GHG performance
  - **Kyoto period of five (5) years is way too short**
3. Simplification of process—**conservative** can be a substitute for **exact**
  - Cannot account for every tonne; but *can* create a positive atmosphere for accelerating the trend to a low-carbon economy
4. **We only achieve “learning by doing” if we keep doing!!**

## Slide 24

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**a1**

Not sure what this means and also not sure whether this is the right point to end on when you have so many other strong and important points to make

abarnes, 3/25/2008



# Thank You

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